

401 KAR 59:020 New incinerators.

NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION CABINET
Department for Environmental Protection
Division for Air Quality

Relates to: KRS Chapter 224

Pursuant to: KRS 224.10-100

Necessity and Function: KRS 224.10-100 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation is to provide standards of performance for new incinerators.

Section 1. Applicability.

The provisions of this regulation shall apply to each affected facility which means each incinerator commenced on or after the applicable classification date defined below.

Section 2. Definitions.

As used in this regulation, all terms not defined herein shall have the meaning given them in 401 KAR 50:010.

- (1) "Incinerator" means any furnace used in the process of burning waste for the purpose of reducing the volume of the waste by removing combustible matter.
- (2) "Day" means twenty-four (24) hours.
- (3) "Auxiliary fuel" means a substance burned in an incinerator to supply additional heat to attain temperature sufficiently high to dry and ignite a waste material and to maintain ignition of the waste material.
- (4) "Classification date" means:
 - (a) August 17, 1971 for incinerators with a charging rate of more than fifty (50) tons/day;
 - (b) April 9, 1972 for incinerators with a charging rate of fifty (50) tons/day or less, subject to Section 3(2)(b); and

June 6, 1979 for incinerators with a charging rate of fifty (50) tons/day or less subject to Section 3(2)(a).

Section 3. Standards for Particulate Matter.

- (1) No owner or operator of any affected facility shall cause, suffer, allow, or permit the emission produced by the incineration of any substance to have greater than twenty (20) percent opacity.
- (2)
 - (a) No owner or operator of an affected facility of 500 lb/hr up to and including forty-five (45) metric tons per day charging rate (fifty(50) tons/day) commenced on or after June 6, 1979 shall cause to be discharged into the atmosphere from any affected facility any gases which contain particulate matter in excess of 0.23 g/dscm (0. gr/dscf) corrected to twelve (12) percent carbon dioxide excluding the contribution of carbon dioxide from auxiliary fuel.
 - (b) No owner or operator of an affected facility of 500 lb/hr up to and including forty-five (45) metric tons per charging rate (fifty (50) tons/day) commenced on or after April 9, 1972 but before June 6, 1979 shall cause to be discharged into the atmosphere from any affected facility any gases which contain particulate matter in excess of 0.45

g/dscm (0.2 gr/dscf) corrected to twelve (12) percent carbon dioxide excluding the contribution of carbon dioxide from auxiliary fuel.

- (3) On and after the date on which the performance test required to be conducted by 401 KAR 59:005 is completed, no owner or operator of an affected facility of more than forty-five (45) metric tons per day charging rate (fifty(50) tons/day) shall cause to be discharged into the atmosphere from any affected facility any gases which contain particulate matter in excess of 0.18 g/dscm (0.08 gr/dscf) corrected to twelve (12) percent carbon dioxide excluding the contribution of carbon dioxide from auxiliary fuel.

Section 4. Monitoring of Operations.

The owner or operator of an affected facility of more than forty- five (45) metric tons per day charging rate (fifty (50) tons per day) shall record the daily charging rates and hours of operations.

Section 5. Nameplate.

All affected facilities shall have a nameplate installed in a conspicuous place on the unit giving the manufacturer's name, model number, rated capacity, and the types of waste material for which the unit is designed.

Section 6. Test Methods and Procedures.

- (1) The reference methods as defined in Appendix A of 40 CFR 60, filed by reference in 401 KAR 50:015, except as provided for in 401 KAR 50:045, shall be used to determine compliance with the standards prescribed in Section 3 as follows:
 - (a) Reference Method 5 for the concentration of particulate matter and the associated moisture content;
 - (b) Reference Method 1 for sample and velocity traverses;
 - (c) Reference Method 2 for velocity and volumetric flow rate;
 - (d) Reference Method 3 for gas analysis and calculation of excess air, using the integrated sample technique; and
 - (e) Reference Method 9 for visible emissions.
- (2) The sampling time for each run shall be at least sixty (60) minutes and the minimum sample volume shall be 0.85 dscm (30.0 dscf) except that smaller sampling times or sample volumes, when necessitated by process variables or other factors, may be approved by the department.
- (3) If a wet scrubber is used, the gas analysis sample shall reflect flue gas conditions after the scrubber, allowing for carbon dioxide absorption by sampling the gas on the scrubber inlet and outlet sides according to either the procedure under paragraphs (a) through (f) of this subsection or the procedure under Section 7.
 - (a) The inlet site shall be selected according to Reference Method 1 or as specified by the department.
 - (b) The outlet sample site shall be the same as for the particulate matter measurement.
 - (c) Randomly select nine (9) sampling points within the cross section at both the inlet and outlet sampling sites. Use the first set of three (3) for the first run, the second set for the second run, and the third set for the third run.
 - (d) Simultaneously with each particulate matter run, extract and

analyze for carbon dioxide an integrated gas sample traversing the three (3) sample points and sampling at each point for equal increments of time. Conduct the runs at both inlet and outlet sampling sites.

- (e) Measure the volumetric flow rate at the inlet during each particulate matter run using the full number of traverse points. For the inlet make two (2) full velocity traverse approximately one (1) hour apart during each run and average the results. The outlet volumetric flow rate may be determined from the particulate matter run.
- (f) Calculate the adjusted carbon dioxide percentage using the equation in Appendix A of this regulation.

Section 7. Alternatively, the following procedures may be substituted for the procedures under Section 6(3)(d), (e) and (f).

- (1) Simultaneously with each particulate matter run, extract and analyze for carbon dioxide, oxygen, and nitrogen an integrated gas sample traversing the three (3) sample points and sampling for equal increments of time at each point. Conduct the runs at both the inlet and outlet sampling sites.
- (2) After completing the analysis of the gas sample, calculate the percentage of excess air for both the inlet and outlet sampling sites.
- (3) Calculate the adjusted carbon dioxide percentage using the equation in Appendix B of this regulation.
- (4) Particulate matter emissions, expressed in g/dscm, shall be corrected to twelve (12) percent carbon dioxide by using the formula in Appendix C of this regulation.

Effective Date: January 7, 1981.

	Date Submitted to EPA	Date Approved by EPA	Federal Register
Original Reg	JUN 29, 1979	JUL 12, 1982	47 FR 30059

APPENDIX A TO 401 KAR 59:020
CALULATION FOR ADJUSTED CARBON DIOXIDE PERCENTAGE FOR
INCINERATORS

$$\%CO_2A = \%CO_2D (Q_i/Q_o)$$

where:

$\%CO_2A$ is the adjusted carbon dioxide percentage which removes the effect of carbon dioxide adsorption and dilution air.

$\%CO_2D$ is the percentage of carbon dioxide measured before the scrubber, dry basis.

Q_i is the volumetric flow rate befor the scrubber average of two (2) runs, dscf/min, and

Q_o is the volumetric flow rate after the scrubber, dscf/min.

APPENDIX B TO 401 KAR 59:020
CALCULATION FOR ADJUSTED CARBON DIOXIDE PERCENTAGE
INCINERATOR, ALTERNATE PROCEDURE

$$\%CO_2A = CO_2D \frac{100 + EA_i}{100 + \%EA_o}$$

where:

CO_2A is	the adjusted outlet carbon dioxide percentage,
CO_2D is	the percentage of carbon dioxide measured before the scrubber, dry basis,
$\%EA_i$ is	the percentage of excess air at the inlet, and
EA_o is	the percentage of excess air at the outlet.

APPENDIX C TO 401 KAR 59:020
PARTICULATE EMISSIONS CORRECTION CALCULATION FOR
INCINERATORS, ALTERNATE PROCEDURE

$$C_{12} = \frac{12C_p}{\%CO_2}$$

where:

C_{12} is the concentration of particulate matter corrected to twelve (12) percent carbon dioxide,
 C_p is the concentration of particulate matter and,
 $\%CO_2$ is the percentage of measured carbon dioxide or when applicable, the adjusted outlet carbon dioxide percentage as determined by Appendis B to this regulation.